GOLDEN EAGLE RANCH (PWS 5070088)
SOURCE WATER ASSESSMENT FINAL REPORT

June 14, 2004

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for the Golden Eagle Ranch, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, e.g. nitrates, arsenic), volatile organic contaminants (VOCs, e.g. petroleum products), synthetic organic contaminants (SOCs, e.g. pesticides), and microbial contaminants (e.g. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

The Golden Eagle Ranch drinking water system (PWS 5070088) consists of two wells: Well #1 and Well #2. The two wells are close enough in location and in lithology that they share the same delineation (Figure 2) and the same potential contaminant inventory list (Table 1). The wells had high ratings in hydrologic sensitivity, moderate ratings for system construction, and moderate to low ratings for potential contaminant sources and land use. Therefore, the overall susceptibility for the wells rated high susceptibility to IOCs, VOCs, and SOCs, and moderate susceptibility to microbial contamination.

Water chemistry tests have never detected VOCs, SOCs, or microbial contaminants in the well water. The IOCs cadmium, barium, fluoride, and nitrate have been detected, but at levels below the maximum contaminant levels (MCLs) for drinking water.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the Golden Eagle Ranch, drinking water protection activities should focus on maintaining the requirements of the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Any spills from

the potential contaminant sources listed in Table 1 of this report should be carefully monitored, as should any future development in the delineated areas. Other drinking water protection activities should focus on sustaining and implementing practices aimed at wellhead protection. Issues raised in the October 2002 sanitary survey should be addressed. The ponds that were within 50 feet of the wellhead have been re-engineered to place them beyond the 50-foot requirement. Keeping the wellhead and surface seal up to standards and keeping the wellheads properly drained and protected from surface runoff lowers the system construction susceptibility ratings. Other practices aimed at reducing the movement of contaminants within the designated source water areas should be investigated. Any accidental spills in the Big Wood River or from Highway 75 should be closely monitored. Disinfection practices could be implemented if microbial contamination becomes a concern. Most of the designated areas are outside the direct jurisdiction of the Golden Eagle Ranch. Partnerships with state and local agencies and industry groups should be established and are critical to success.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near urban and residential land use areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. There are transportation corridors near the delineations, therefore the State Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission and Gem Soil and Water Conservation District, and the Natural Resources Conservation Service.

Several public drinking water systems in Blaine County have state certified drinking water protection plans including the City of Hailey, Cold Springs Sub-division and Hulen Meadows. Other systems are in the process of developing drinking water protection plans. Blaine County is nearing completion and adoption of a county drinking water protection plan.

A community with a fully developed drinking water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR GOLDEN EAGLE RANCH, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated drinking water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the U.S. Environmental Protection Agency (EPA) to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments for sources active prior to 1999 were completed by May of 2003. SWAs for sources activated post-1999 are being developed on a case-by-case basis. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The Golden Eagle Ranch wells make up a community system serving approximately 45 people through 22 connections. The subdivision is located in Blaine County, about 1 mile south of the confluence of the East Fork Wood River with the Big Wood River (Figure 1). The public drinking water system for the Golden Eagle Ranch is comprised of two wells.

There are no current significant water chemistry problems in the drinking water. No inorganic contaminants (IOCs) (e.g. nitrate, cadmium, barium) have been recorded above the maximum contaminant level (MCL). Volatile organic contaminants (VOCs), synthetic organic contaminants (SOCs), and microbial contamiants have never been detected in any of the drinking water. Though no significant IOC, VOC, SOC, or microbial water chemistry problems currently exist, the possibility of contamination from nearby sources remains.

Defining the Zones of Contribution--Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time of travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) time of travel for water associated with the Big Wood River aquifer in the vicinity of the Golden Eagle Ranch. The computer model used site specific data, assimilated by DEQ from a variety of sources including the Golden Eagle Ranch Well A well log, local area well logs, and various reports (Castelin and Winner, 1975; Frenzel, 1989). The delineation can best be described as bounding the Big Wood River and East Fork Wood River valley floors four (4) miles to the north and five (5) miles to the northeast. The actual data used by DEQ in determining the source water assessment delineation area is available upon request.

General Geology

The geology of the region was described in detail by Umpleby et al. (1930) and was geologically mapped by Rember and Bennett (1979). The mountains in the area are composed of Pre-Cretaceous sedimentary and metamorphic rocks, Cretaceous granitic rocks, and Tertiary volcanic rocks. Extensive faulting and folding have resulted in complex structure (Luttrell and Brockway, 1984). Terraces in the area are composed of alluvial deposits.

The water bearing alluvial sediments that fill the Big Wood River Valley are of Quarternary age. Most of the valley fill is stream and delta clay, sand, and gravel. A relatively thin sheet of coarse fluvioglacial sediments overlies and alluvium. The fluvioglacial deposit is thickest around Hailey and thins to the south. Local well logs show thicknesses in excess of 300 feet. Shallow dug wells yield large amounts of ground water from the alluvium, though the pumping of wells near the river induces rapid infiltration of river water. The slope wash deposits of the higher altitudes in the mountains is not an important source of water, but the sediments readily transmit water to the alluvium in the lowland valley (Smith, 1959).

Precipitation data were collected at Hailey from 1917 to 1982 and at Sun Valley from 1937 to 1973. Mean annual precipitation for the 1940-79 base period was 16.0 inches at Hailey and 17.5 inches at Sun Valley/Ketchum. The mean annual precipitation for Warm Springs Creek at 7,660 feet altitude in 28 inches (Frenzel, 1989).

Major tributaries to the Big Wood River include the North Fork Big Wood River, Trail Creek, Warm Springs Creek, and East Fork Big Wood River. Surface water and ground water are interconnected in the basin. The Big Wood River gains or losses water based on local conditions and seasonal factors.

Transmissivity (T), equal to the hydraulic conductivity (K) multiplied by the thickness of the aquifer (b) was estimated using specific capacity tests of six wells with a minimum pumping rate of 500 gpm and a minimum pumping time of 2 hours (Frenzel, 1989). The resulting T was averaged at 13,300 $feet^2$/day. K averaged 150 to 300 feet/day. Tested City of Hailey wells resulted in K values of 310 to 490 feet/day.

Local conditions

Due to the proximity of the wells and the narrow valley of the alluvium, the delineations were conducted using boundary conditions along the sides of the valley. The length of the capture zones caused many of the delineations to overlap. Local area well logs and specific capacity tests set the hydrogeologic properties used in the modeling runs. Hydraulic conductivity within the alluvium ranged from 150 to 500 feet/day with an average value of 300 feet/day. With such a shallow water table, the aquifer was modeled as unconfined and hydraulically connected to the Big Wood River and the tributaries. Many of the delineation boundaries reach the boundaries of the alluvium because of the hydraulic connection with the river. Thickness of the alluvium ranged from 60 feet to 600 feet, with one well log showing up to 1,500 feet of alluvium. Precipitation at Ketchum averages about 19 inches/year, but values up to 22 inches/year were used for delineation in higher areas. Porosity for alluvium varies from 0.2 to 0.3.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of groundwater contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

The dominant land use outside the Golden Eagle Ranch area is undeveloped land, agricultural land, and residential land uses. Land use within the immediate area of the wellhead consists of residential uses.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination. These involve educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted during winter 2003 and spring 2004. The first phase involved identifying and documenting potential contaminant sources within the Golden Eagle Ranch source water assessment area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second or enhanced phase of the contaminant inventory involved contacting the operator to validate the sources identified in phase one and to add any additional potential sources in the area.

The Golden Eagle Ranch wells have a total of four potential contaminant sites and three additional potential contaminant sources within the delineated source water areas (see Table 1). They consist of a rental service, a cleaning business, a business with an underground storage tank (UST), and a facility regulated by a National Pollutant Discharge Elimination System (NPDES) permit. Additionally, the Big Wood River and Highway 75 could be potential sources of contamination from an accidental spill. Figure 2 shows the locations of these various potential contaminant sites relative to the wellhead. Since the ground water aquifer is hydraulically connected to the surface water system (Luttrell and Brockway, 1984), the Big Wood River will be considered a potential source of contamination.

Table 1. Golden Eagle Ranch, Well #1 and #2, Potential Contaminant Inventory

SITE #	Source Description	TOT Zone (years)	Source of Information	Potential Contaminants
1	Rental Service	0-3	Database Search	IOC, VOC, SOC
2	Cleaner	0-3	Database Search	VOC
	Big Wood River	0-10	Database Search	IOC, VOC, SOC, Microbes
	Highway 75	0-10	Database Search	IOC, VOC, SOC, Microbes
3	UST-open, Contractor	6-10	Database Search	VOC, SOC
4	NPDES, Municipal	6-10	Database Search	IOC

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

Significant potential sources of contamination were ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix A contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination. A lower hydrologic sensitivity score implies a system is less vulnerable to contamination.

Hydrologic sensitivity was rated high for the Golden Eagle Ranch drinking water system (see Table 2). Multiple factors increase the likelihood of movement of contaminants from the surface to the aquifer and lead to this high score. The soils within the delineation are classified as moderate to well drained. The well logs show that the vadose zone is made of gravel and top soil. With the water table at 10 to 11 feet below ground surface (bgs), and the producing zone 60 to 90 feet bgs, there is insufficient low permeability layers.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in Sanitary Surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

Well #1 was drilled in June 1996 to a depth of 105 feet bgs using 0.250-inch thick, 14-inch casing from 0 to 50 feet bgs and 0.380-inch thick, 10-inch casing to 102 feet bgs into “boulders and gravel and some brown clay.” A bentonite seal was placed from ground surface to 50 feet bgs into “gravel and sand.” Perforated casing was placed from 60 to 90 feet bgs. The water table was identified at 10 feet bgs. The October 2002 sanitary survey indicates that the pump capacity and well yield are both 200 gallons per minute (gpm) and that the daily design production is 288,000 gallons per day (gpd).

The sanitary survey also indicates that the well is not located in a well house and is not protected from unauthorized personnel. However, it also indicates that the well site is properly drained and protected against flooding. A properly installed sanitary seal is present and the well casing extends above grade appropriately. Though the well may have been in compliance with construction standards when it was drilled in 1996, the well log is insufficient for determining if current construction standards are being met.

Well #2 was drilled in June 1996 to a depth of 103 feet bgs using 0.250-inch thick, 14-inch casing from 0 to 50 feet bgs and 0.380-inch thick, 10-inch casing to 101 feet bgs into "boulders and gravel." A bentonite seal was placed from ground surface to 50 feet bgs into "heavy sand and gravel." Perforated casing was placed from 65 to 95 feet bgs. The water table was identified at 11 feet bgs. The October 2002 sanitary survey indicates that the pump capacity and well yield are both 125 gpm and that the daily design production is 180,000 gpd. The sanitary survey also indicates that the well is not located in a well house and is not protected from unauthorized personnel. However, it also indicates that the well site is properly drained and protected against flooding. A properly installed sanitary seal is present and the well casing extends above grade appropriately. Though the well may have been in compliance with construction standards when it was drilled in 1996, the well log is insufficient for determining if current construction standards are being met.

The IDWR Well Construction Standards Rules (1993) require all public water systems (PWSs) follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the Recommended Standards for Water Works (1997) when during construction. Various aspects of the standards can be assessed from well logs. Table 1 of the Recommended Standards for Water Works (1997) states that 14-inch require a thickness of 0.375 inches, and 10-inch casing require a thickness of 0.365 inches. Both wells meet this requirement. The Standards states that screens will be installed and have openings based on sieve analysis of the formation. Both wells used perforations. Standard 3.2.4.1 requires all PWSs to have yield and drawdown tests that last "24 hours or until stabilized drawdown has continued for six hours at 1.5 times" the design pumping rate. No information was available on the well logs to confirm if a well test has been completed.

Based on local and nearby well logs and previous studies of the area (Castelin and Winner, 1975; Frenzel, 1989; Brockway and Kahlown, 1994), the Golden Eagle Ranch wells are completed in the fluvioglacial (river and glacier deposited) sediments comprised of fine to coarse-grained gravel that have considerable quantities of water available for use.

Potential Contaminant Source and Land Use

The wells rated moderate for IOCs (e.g. nitrate), SOCs (e.g. pesticides), and VOCs (e.g. petroleum products), and low for microbial contaminants. The largest number of points in all categories came from the nearby location of the Big Wood River and Highway 75. These sources could potentially contribute IOC, VOC, SOC, and microbial contaminants to the wells. The other sources in the 3-year TOT also added points.

Final Susceptibility Ranking

Detections above drinking water standard maximum contaminant levels (MCLs), a detection of total coliform bacteria or fecal coliform bacteria at the wellhead, any detection of VOCs or SOCs, or a potential source of contamination within 50 feet of the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time of travel zone (Zone 1B) contribute greatly to the overall ranking.

Table 2. Summary of Golden Eagle Ranch Susceptibility Evaluation

Well	Susceptibility Scores									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbes		IOC	VOC	SOC	Microbes
Well #1	H	M	M	M	L	M	H	H	H	M
Well #2	H	M	M	M	L	M	H	H	H	M

H = High Susceptibility, M = Moderate Susceptibility, Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

The wells show a high susceptibility to IOC, VOC, SOC contamination, and a moderate susceptibility to microbial contamination. Water chemistry data show that no category of contamination currently threatens the Golden Eagle Ranch drinking water system. Nitrate and fluoride were detected at background levels, well below the MCLs.

The wells in the Golden Eagle Ranch system take water from the alluvial (river deposited) aquifer that comprises the valley floor. The valley floor is ½ mile to 1-½ miles in width. The depth of the valley fill in the area of the Golden Eagle Ranch is approximately 60 to 100 feet below land surface (Castelin and Winner, 1975). The ground water and surface water systems are hydraulically connected and the hydraulic potential within the aquifer does not vary greatly. Recharge is primarily from precipitation, tributary valley underflow, and canal and stream seepage losses (Luttrell and Brockway, 1984). Water quality problems in the area have been attributed to sewage treatment facilities, mining, construction, and agriculture (Castelin and Winner, 1975).

Section 4. Options for Drinking water protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the Golden Eagle Ranch, drinking water protection activities should focus on maintaining the requirements of the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Any spills from the potential contaminant sources listed in Table 1 of this report should be carefully monitored, as should any future development in the delineated areas. Other drinking water protection activities should focus on sustaining and implementing practices aimed at wellhead protection. Issues raised in the October 2002 sanitary survey, such as evaluating the impact of ponds and keeping the wellheads clear to 50 feet have been addressed. Keeping the wellhead and surface seal up to standards and keeping the wellheads properly drained and protected from surface runoff lowers the system construction susceptibility ratings. Other practices aimed at reducing the movement of contaminants within the designated source water areas should be investigated. Any accidental spills in the Big Wood River or from Highway 75 should be closely monitored. Disinfection practices could be implemented if microbial contamination becomes a concern. Though agricultural activities are currently not a major land use, the highly permeable nature of the soils and the movement rates of the water through the aquifer could make agricultural chemical leaching a concern. Most of the delineated areas are outside the direct jurisdiction of the Golden Eagle Ranch. Partnerships with state and local agricultural agencies, county elected officials, and industry groups should be established and are critical to success.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near urban and residential land use areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. There are transportation corridors near the delineations, therefore the State Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission and Gem Soil and Water Conservation District, and the Natural Resources Conservation Service.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office (208) 736-2190

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper, Idaho Rural Water Association, at 1-208-373-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

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Attachment A

Golden Eagle Ranch Susceptibility Analysis Worksheets

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : GOLDEN EAGLE RANCH Well# : WELL #1
Public Water System Number 5070088 04/12/2004 9:11:13 AM

1. System Construction		SCORE			
Drill Date	06/02/1996				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2002			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
	Total System Construction Score	4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
	Total Hydrologic Score	6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	DRYLAND AGRICULTURE	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		1	1	1	1
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	3	4	3	2
(Score = # Sources X 2) 8 Points Maximum		6	8	6	4
Sources of Class II or III leacheable contaminants or	YES	2	3	2	
4 Points Maximum		2	3	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		8	11	8	4
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		3	3	3	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		2	2	2	0
Cumulative Potential Contaminant / Land Use Score		14	17	14	5
4. Final Susceptibility Source Score		13	13	13	12
5. Final Well Ranking		High	High	High	Moderate

Ground Water Susceptibility Report Public Water System Name : GOLDEN EAGLE RANCH Well# : WELL #2
Public Water System Number 5070088 04/12/2004 9:11:13 AM

1. System Construction		SCORE			
Drill Date	06/02/1996				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2002			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
	Total System Construction Score	4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
	Total Hydrologic Score	6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	DRYLAND AGRICULTURE	1	1	1	1
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
	Total Potential Contaminant Source/Land Use Score - Zone 1A	1	1	1	1
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	3	4	3	2
(Score = # Sources X 2) 8 Points Maximum		6	8	6	4
Sources of Class II or III leacheable contaminants or	YES	2	3	2	
4 Points Maximum		2	3	2	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
	Total Potential Contaminant Source / Land Use Score - Zone 1B	8	11	8	4
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
	Potential Contaminant Source / Land Use Score - Zone II	3	3	3	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
	Total Potential Contaminant Source / Land Use Score - Zone III	2	2	2	0
Cumulative Potential Contaminant / Land Use Score		14	17	14	5
4. Final Susceptibility Source Score		13	13	13	12
5. Final Well Ranking		High	High	High	Moderate